

**Product Data Sheet**    **8315100479**  
VWCE040KJDES  
AxiForce40

**ebm****papst**

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## AxiForce40

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**1 General**

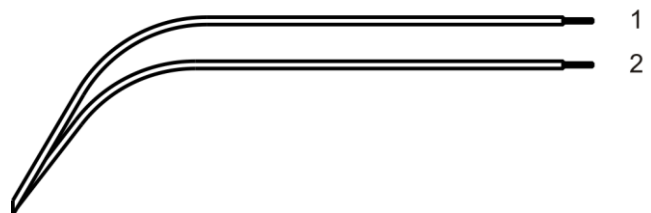
|                                     |                        |  |
|-------------------------------------|------------------------|--|
| Fan type                            | Axial                  |  |
| Rotating direction looking at rotor | Counterclockwise       |  |
| Airflow direction                   | Air outlet over struts |  |
| Bearing system                      | Ball bearing           |  |
| Mounting position - shaft           | Any                    |  |

**2 Mechanics****2.1 General**

|                                                       |                                                                         |  |
|-------------------------------------------------------|-------------------------------------------------------------------------|--|
| Width                                                 | 40,0 mm                                                                 |  |
| Height                                                | 40,0 mm                                                                 |  |
| Depth                                                 | 28,0 mm                                                                 |  |
| Mass                                                  | 48 g                                                                    |  |
| Housing material                                      | Plastic                                                                 |  |
| Impeller material                                     | Plastic                                                                 |  |
| Max. torque when mounted across both mounting flanges | Wire outlet corner: 30 Ncm<br>Remaining corners: 30 Ncm                 |  |
| Screw size                                            | ISO 4762 - M3 degreased, without an additional brace and without washer |  |

**2.2 Connections**

|                       |            |  |
|-----------------------|------------|--|
| Electrical connection | Wires      |  |
| Lead wire length      | L = 310 mm |  |
| Tolerance             | +/- 10 mm  |  |



| Wire | Color | Operation | Wire size | Insulation diameter |
|------|-------|-----------|-----------|---------------------|
| 1    | red   | + UB      | AWG 26    | 1,0 mm              |
| 2    | blue  | - GND     | AWG 26    | 1,0 mm              |

The auxiliaries shown on the schematic diagram (which are required for the intended use) are not part of our delivery.

### 3 Operating Data

#### 3.1 Electrical Operating Data

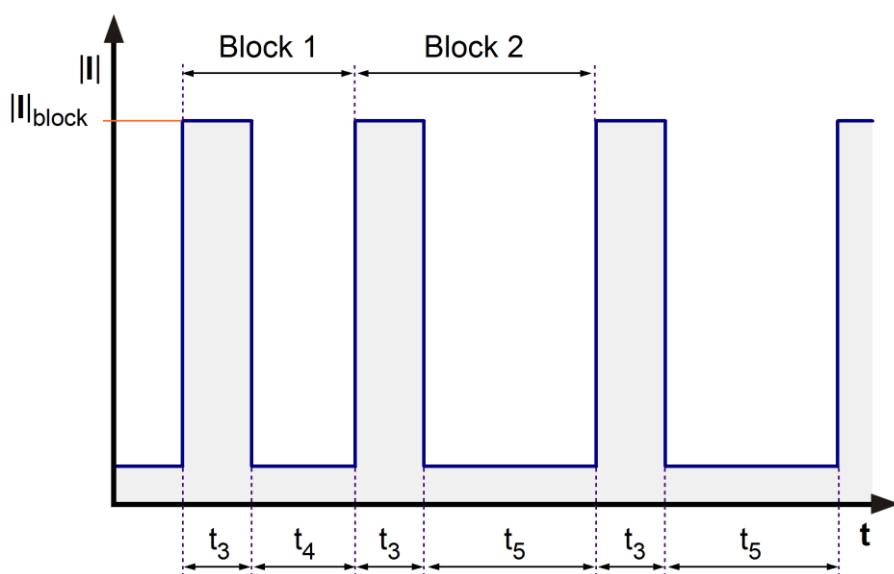
Measurement conditions: Normal air density = 1,2 kg/m<sup>3</sup>; Temperature 23°C +/- 3°C; Motor axis horizontal; warm-up time before measuring 15 minutes. In the intake and outlet area should not be any solid obstruction within 0,5 m.

$\Delta p = 0$ : corresp. to free air flow (see chapter aerodynamics)  
 I: corresp. to arithm. mean current value

| Features                     | Condition      | Symbol         | Values       |              |              |
|------------------------------|----------------|----------------|--------------|--------------|--------------|
| Voltage range                |                | U              | 15 V         |              | 30 V         |
| Nominal voltage              |                | U <sub>N</sub> |              | 24 V         |              |
| Power consumption            | $\Delta p = 0$ | P              | 4,6 W        | 5 W          | 5,1 W        |
| Tolerance                    | 0010           |                | +/- 17,5 %   | +/- 20 %     | +/- 20 %     |
| Current consumption          | $\Delta p = 0$ | I              | 310 mA       | 210 mA       | 170 mA       |
| Tolerance                    | 0010           |                | +/- 17,5 %   | +/- 20 %     | +/- 20 %     |
| Speed                        | $\Delta p = 0$ | n              | 14.500 1/min | 15.000 1/min | 15.000 1/min |
| Tolerance                    | 0010           |                | +/- 12,5 %   | +/- 5,0 %    | +/- 5,0 %    |
| Starting current consumption |                |                |              | <= 1.000 mA  |              |

## 3.2 Electrical Features

|                                |                                         |  |
|--------------------------------|-----------------------------------------|--|
| Electronic function            | Speed-Controlled                        |  |
| Reversed polarity protection   | Rectifying diode                        |  |
| Max. residual current at $U_N$ | $I_F \leq 1 \text{ mA}$                 |  |
| Locked rotor protection        | Auto restart                            |  |
| Locked rotor current at $U_N$  | $I_{\text{block}}$ approx. 1.000 mA     |  |
| Clock signal at locked rotor   | $t_3 / t_4$ typical: 0,33 s / 0,33 s    |  |
| Extended Downtime              | $t_5$ : 9,4 s after 3 start-up attempts |  |
| Internal fuse                  | None                                    |  |



Block1: (The first 2 cycles)  $t_3/t_4 = 0,33\text{s}/0,33\text{s}$ ;  
 Block2: locked rotor protection  $t_3/t_5 = 0,33\text{s}/9,4\text{s}$

### 3.3 Aerodynamics

Measurement conditions:

Measured with a double chamber intake rig acc. to DIN EN ISO 5801.

Normal air density = 1,2 kg/m<sup>3</sup>; Temperature 23°C +/- 3°C;

In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal.

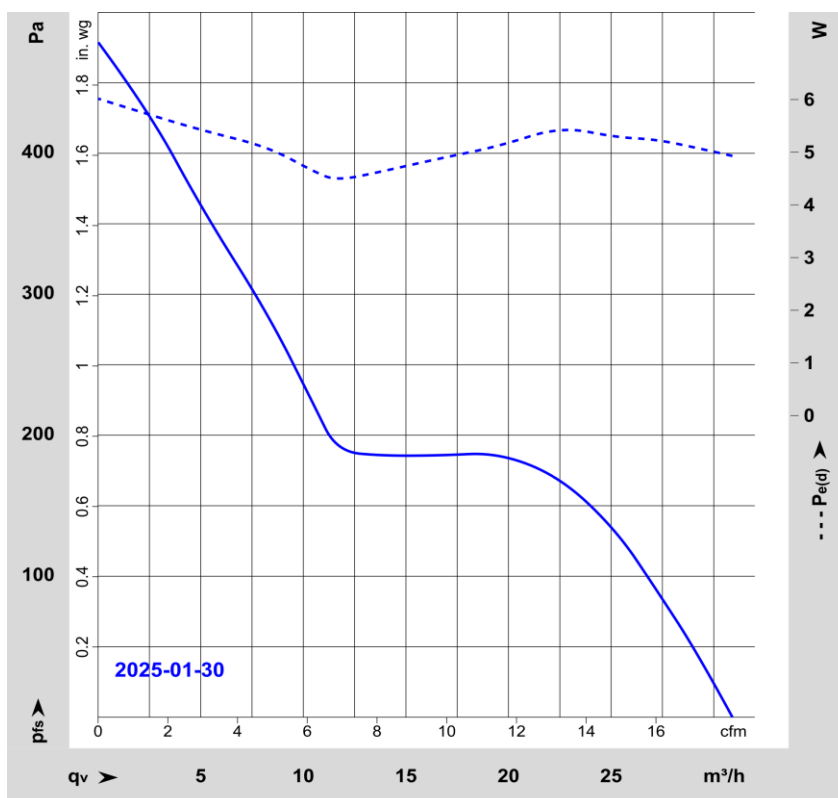
The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions. Power consumption of the fan motor when operating at normal voltage is shown. Depending on the operating conditions of the application, the power input may be higher.

a.) Operation condition:

15.000 1/min at free air flow

|                                                                   |                      |  |
|-------------------------------------------------------------------|----------------------|--|
| Max. free-air flow ( $\Delta p = 0$ / $\dot{V} = \text{max.}$ )   | 31 m <sup>3</sup> /h |  |
| Max. static pressure ( $\Delta p = \text{max.}$ / $\dot{V} = 0$ ) | 480 Pa               |  |

Preliminary data.



### 3.4 Sound Data

Measurement conditions: Sound pressure level: 1 meter distance between microphone and the air intake.  
Sound power level: According to ISO 10302-1  
Measured in a semi anechoic chamber with a background noise level of  $L_p(A) < 5 \text{ dB(A)}$   
For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

|                                                                 |                               |  |
|-----------------------------------------------------------------|-------------------------------|--|
| 15.000 1/min at free air flow                                   |                               |  |
| Optimal operating point                                         | 25 m <sup>3</sup> /h @ 130 Pa |  |
| Sound power level at the optimal operating point                | 6 bel(A)                      |  |
| Sound pressure level at free air flow, measured in rubber bands | 48 dB(A)                      |  |

Preliminary data.

## 4 Environment

### 4.1 General

|                                            |        |  |
|--------------------------------------------|--------|--|
| Min. permitted ambient temperature TU min. | -40 °C |  |
| Max. permitted ambient temperature TU max. | 70 °C  |  |
| Min. permitted storage temperature TL min. | -40 °C |  |
| Max. permitted storage temperature TL max. | 80 °C  |  |

### 4.2 Climatic Requirements

|                                |                                                               |  |
|--------------------------------|---------------------------------------------------------------|--|
| IP-protection type (certified) | IP 20 **)                                                     |  |
| Humidity requirements          | humid heat, constant; according to DIN EN 60068-2-78, 14 days |  |
| Salt fog requirements          | None                                                          |  |

Permitted application area:

The product is intended for use in sheltered rooms with controlled temperature and controlled humidity. Directly exposure to water must be avoided.

Pollution degree 1 (according to DIN EN 60664-1)

There is either no pollution or it occurs only dry, non-conductive pollution. The pollution has no negative impact.

\*\*) The specification of the IP protection refers to the conditions mentioned in certification of the fan. The above mentioned short description of the protection scope is not final. For detailed information of the respective protection scope and definitions, see certification as well as DIN EN 60529 (protection by housings) and ISO 20653 (for vehicles) with the letter K.

#### **Short description of the IP-protection type:**

Solid particle Protection: Protected against solid particles with a diameter of 12.5 mm and larger.

Protection against deliberate contact: Protected against contact to hazardous parts with a finger.

Protection against water: No protection.

### 4.3 Mechanical Requirements

Please require severity levels and specification parameters from the responsible development departments.

### 4.4 EMC

| Kind                 | Radiated Emission; 30 MHz - 1000 MHz (without PE) |
|----------------------|---------------------------------------------------|
| According            | DIN EN 55032:2016-02                              |
| Test severity/ Limit | Class B                                           |
| Result               | Below limit Class B                               |

| Kind                 | Electrostatic Discharge Immunity Test                                                      |
|----------------------|--------------------------------------------------------------------------------------------|
| According            | DIN EN 61000-4-2:2001-12                                                                   |
| Test severity/ Limit | Contact Discharge +/- 4 kV; Air Discharge +/- 8 kV                                         |
| Result               | A: The monitored function operates as designed during and after exposure to a disturbance. |

| Kind                 | Electromagnetic Field Immunity Test                                                        |
|----------------------|--------------------------------------------------------------------------------------------|
| According            | DIN EN 61000-4-3:2006-12                                                                   |
| Test severity/ Limit | 10 V/m; 80 - 1000 MHz; AM; m = 0,8; f = 1 kHz; 1%; t = 3 s                                 |
| Result               | A: The monitored function operates as designed during and after exposure to a disturbance. |

| Kind                 | Electrical Fast Transient / Burst Immunity Test                                            |
|----------------------|--------------------------------------------------------------------------------------------|
| According            | DIN EN 61000-4-4:2005-07                                                                   |
| Test severity/ Limit | +/- 2 kV on Power Lines; Coupling: POS, NEG, {PE}, ALL, 5 kHz and 100 kHz; 1 min           |
| Result               | A: The monitored function operates as designed during and after exposure to a disturbance. |

| Kind                 | Immunity to Conducted Disturbances, Induced by RF-Fields                                   |
|----------------------|--------------------------------------------------------------------------------------------|
| According            | DIN EN 61000-4-6:2001-12                                                                   |
| Test severity/ Limit | 10 Vrms; 150 kHz - 80 MHz; AM; m = 0,8; f = 1 kHz; 1%; t = 3 s                             |
| Result               | A: The monitored function operates as designed during and after exposure to a disturbance. |

**5 Safety****5.1 Electrical Safety**

|                                                                                                                                                                                                                                                                                                                                                                     |                                          |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--|
| Dielectric strength<br>DIN EN 62368 and DIN EN 60335<br>A.) Type test<br>Measuring conditions: After 48h of storage at 95% R.H. and 25°C.<br>No arcing or breakdown is allowed!<br>All connections together to ground.<br>B.) Routine test<br>Measuring conditions: At indoor climate.<br>No arcing or breakdown is allowed!<br>All connections together to ground. | 500 VAC / 1 Min.<br><br>850 VDC / 1 Sec. |  |
| Isolation resistance<br>Measuring conditions: After 48h of storage at 95% R.H. and 25°C measured with U=500 VDC for 1 min.                                                                                                                                                                                                                                          | RI > 10 MOhm                             |  |
| Clearance / creepage distance                                                                                                                                                                                                                                                                                                                                       | 1,0 mm / 1,2 mm                          |  |
| Protection class                                                                                                                                                                                                                                                                                                                                                    | III                                      |  |

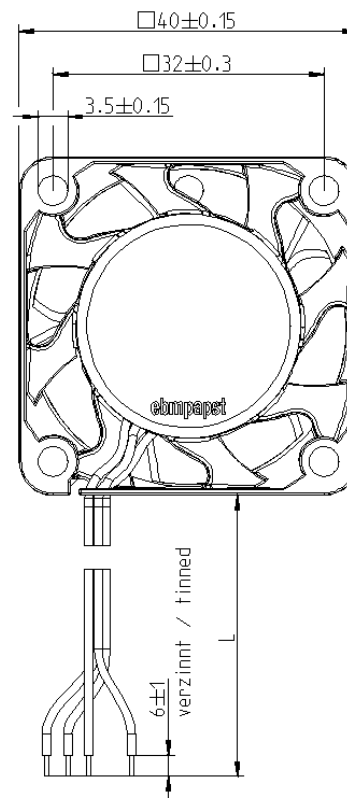
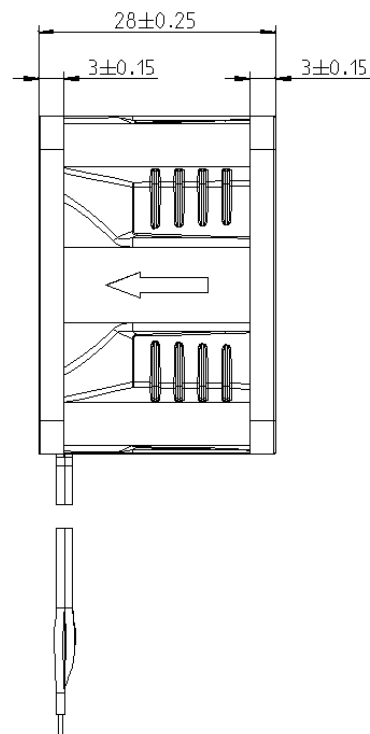
**5.2 Approval Tests**

|      |                                |                                                                                                            |
|------|--------------------------------|------------------------------------------------------------------------------------------------------------|
| CE   | EC Declaration of Conformity   | Yes                                                                                                        |
| EAC  | Eurasian Conformity            | Yes                                                                                                        |
| UL   | Underwriters Laboratories      | Yes / UL507, Electric Fans E38324                                                                          |
| EU   | safety mark for Europe         | Yes/ Approval according to EN 62368 - Equipment for audio/video, information, and communication technology |
| CSA  | Canadian Standards Association | Yes / CSA audited by UL according to C22.2 No. 113 Fans and Ventilators                                    |
| CCC  | China Compulsory Certification | Not applicable                                                                                             |
| UKCA |                                | Yes                                                                                                        |

**6 Reliability****6.1 General**

|                                                    |           |  |
|----------------------------------------------------|-----------|--|
| Life expectancy L10 at TU = 40 °C                  | 80.000 h  |  |
| Life expectancy L10 at TU max.                     | 40.000 h  |  |
| Life expectancy L10 acc. to IPC 9591 at TU = 40 °C | 135.000 h |  |

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- kein Axialspiel der Kugellager durch Federausgleich /  
No axial clearance of the ball bearings due to a pre-load spring
- Anzahl und Länge der Litzen siehe Produktspezifikation  
Number an length of the wires see product specification

|                                                                                       |                     |                                   |                                     |                                   |        |      |      |       |           |  |
|---------------------------------------------------------------------------------------|---------------------|-----------------------------------|-------------------------------------|-----------------------------------|--------|------|------|-------|-----------|--|
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